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EXAMINER
WANG, LIANGCHE

ART UNIT	PAPER NUMBER
2155	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/661,096	PETRY ET AL.
	Examiner	Art Unit	
	Liang-che Alex Wang	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>12 September 2003</u>.

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>11/8/2005</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are presented for examination.

Paper Submitted

2. It is hereby acknowledged that the following papers have been received and placed of

record in the file:

   a. **Information Disclosure Statements** as received on 11/08/2005 is considered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

5. Claim 16 recites the limitation "standby proxy" in line 3. There is insufficient antecedent

basis for this limitation in the claim. The limitation is viewed as "standby system" for

further examination.

6. Claim 17 recites the limitation "the first stateful protocol connection" in line 2. There is

insufficient antecedent basis for this limitation in the claim. The limitation is viewed as

"the first stateful protocol connection" for further examination.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title

8. Claims 18-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to software per se, which does not fall into the categories of "process", "machine", "manufacture" and "composition of matter". Referring to claim 18, claim 18 recites the limitation, "a proxy element having a first and second protocol core", which directs the claim to software per se.

9. All dependent claims are rejected to as having the same deficiencies as the claims they depend from.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 2, 5, 8-12, 14-19, 21 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Orman et al., US Patent Number 7,076,555, hereinafter Orman.

12. Referring to claim 1, Orman teaches a method of facilitating failover of a stateful

protocol connection from a proxy element (failed first server) to a standby proxy (second

server)(Col 1 lines 8-13; Col 6 lines 63-66), the method comprising:

    a. receiving (Col 5 lines 28-35, client uses proxy server to retrieve data from web

        server, the client request is received at the proxy server), at the proxy element

        (failed first server, proxy server 302, Figure 3), data (client request corresponds to

        "data") sent by a first external entity (client 120), in accordance with a first

        stateful protocol connection (Col 9 lines 8-11, original TCP connection

        established between the first server and the client corresponds to "a first stateful

        protocol connection");

    b. withholding acknowledgment of receipt of the data at the proxy element until a

        predefined operation involving the data has been performed (Col 9 line 52 – Col

        10 line 7, second server takes over the TCP connection, corresponds to "a

        predefined operation involving the data", the acknowledgement (ACK) is not sent

        until the second server takes over the TCP connection, corresponds to

        "withholding acknowledgment of receipt of the data at the proxy element until a

        predefined operation involving the data has been performed");

    c. transferring state information relating to the first stateful protocol connection

        from the proxy element (the failed first server) to a standby proxy (second server)

        (Col 9 lines 52-55, 63-66, shared state information originally owned by the failed

        first server is transferred to the second server); and

    d. sending the acknowledgment of receipt (ACK) to the first external entity (Col 10

        lines 4-7, ACK is sent from the proxy server to the client) subsequent to

        performance of the predefined operation involving the data (Col 9 line 52 – Col

        10 line 7, TCP ACK is sent after second server takes over the TCP connection of

        the failed first server).

13. Referring to claim 2, Orman teaches the method of claim 1 wherein the predefined

    .operation comprises committing the data to an application executing upon the proxy

    element (Col 6 lines 20-23, client initiated cache requests are handled by the proxy

    servers) and receiving a send acknowledgment command from the application (Col 10

    lines 4-29, ACK are sent from the proxy server).

14. Referring to claim 5, Orman teaches the method of claim 1 further including failing over

    the first stateful protocol connection to the standby proxy (Col 8 lines 63-66, connections

    between the client and the first server is failing over to the second server).

15. Referring to claim 8, Orman teaches the method of claim 1 wherein the transferring of the

    state information is performed in accordance with an additional stateful protocol

    connection (figure 3, shared state information is stored on shared connection structure

    340, which is transferred to cache via connection between the proxy server and the shared

    connection structure 340).

16. Referring to claim 9, Orman teaches the method of claim 5 further including beginning

    servicing, at the standby proxy, the first stateful protocol connection from a last

    successful point of synchronization between the proxy element and the standby proxy

    (Col 10 lines 22-29, Col 3 lines 32-45).

17. Referring to claim 10, Orman teaches the method of claim 1 further including detecting, at the standby proxy, failure of the first stateful protocol connection (Col 9 lines 11-13, failure of first server is detected by the second server) and initiating failover of the first stateful protocol connection from the proxy element to the standby proxy (Col 9 lines 52-66).

18. Referring to claim 11, Orman teaches a method of facilitating failover of a stateful protocol connection (Col 1 lines 8-13; Col 6 lines 63-66), the method comprising:

    a. receiving (Col 5 lines 28-35, client uses proxy server to retrieve data from web server, the client request is received at the proxy server) data sent by a first external entity (client 120), in accordance with a the stateful protocol connection (Col 9 lines 8-11, original TCP connection established between the first server and the client corresponds to "the stateful protocol connection");

    b. withholding acknowledgment of receipt of the data until a predefined operation involving the data has been performed (Col 9 line 52 – Col 10 line 7, second server takes over the TCP connection, corresponds to "a predefined operation involving the data", the acknowledgement (ACK) is not sent until the second server takes over the TCP connection, corresponds to "withholding acknowledgment of receipt of the data at the proxy element until a predefined operation involving the data has been performed");

    c. transferring state information relating to the stateful protocol connection to a standby system (second server) (Col 9 lines 52-55, 63-66, shared state

information originally owned by the failed first server is transferred to the second

server); and

    d.   sending the acknowledgment of receipt (ACK) to the first external entity (Col 10

lines 4-7, ACK is sent from the proxy server to the client) subsequent to

performance of the predefined operation involving the data (Col 9 line 52 – Col

10 line 7, TCP ACK is sent after second server takes over the TCP connection of

the failed first server)

19. . Referring to claim 12, Orman teaches the method of claim 11 wherein the predefined

operation comprises committing the data to an application (Col 6 lines 20-23, client

initiated cache requests are handled by the proxy servers) and receiving a send

acknowledgment command from the application (Col 10 lines 4-29, ACK are sent from

the proxy server).

20. Referring to claim 14, Orman teaches the method of claim 11 further including failing

over the first stateful protocol connection to the standby system (Col 8 lines 63-66,

connections between the client and the first server is failing over to the second server).

21. Referring to claim 15, Orman teaches the method of claim 11 wherein the transferring of

the state information is performed in accordance with an additional stateful protocol

connection (figure 3, shared state information is stored on shared connection structure

340, which is transferred to cache via connection between the proxy server and the shared

connection structure 340).

22. Referring to claim 16, Orman teaches the method of claim 14 further including beginning

servicing, at the standby system, the stateful protocol connection from a last successful

point of synchronization between the proxy element and the standby system (Col 10 lines

22-29, Col 3 lines 32-45).

23. Referring to claim 17, Orman teaches the method of claim 11 further including detecting,

at the standby system, failure of the stateful protocol connection (Col 9 lines 11-13,

failure of first server is detected by the second server) and initiating failover of the

stateful protocol connection from the proxy element to the standby system (Col 9 lines

52-66).

24. Referring to claim 18, Orman teaches a stateful protocol processing apparatus

comprising:

   a. a proxy element (failed first server) having a first protocol core (interface for

      connection with a client) and a second protocol core (interface for connection

      with a web server)(Col 5 lines 28-37) the first protocol core supporting a first

      stateful protocol connection (Col 9 lines 8-11, original TCP connection

      established between the first server and the client corresponds to "a first stateful

      protocol connection") over which data is received from a first external entity

      (client 120) (Col 5 lines 28-35, client uses proxy server to retrieve data from web

      server, the client request is received at the proxy server) wherein the proxy

      element is configured to withhold acknowledgment of receipt of the data until a

      predefined operation involving the data has been performed (Col 9 line 52 – Col

      10 line 7, second server takes over the TCP connection, corresponds to "a

      predefined operation involving the data", the acknowledgement (ACK) is not sent

      until the second server takes over the TCP connection, corresponds to

"withholding acknowledgment of receipt of the data at the proxy element until a

predefined operation involving the data has been performed"); and

b. a standby element (second server) to which state information relating to the first

   stateful protocol connection is transferred from the proxy element (Col 9 lines

   52-55, 63-66, shared state information originally owned by the failed first server

   is transferred to the second server).

25. Referring to claim 19, Orman teaches the apparatus of claim 18 wherein the predefined

    operation comprises committing the data to an application executing upon the proxy

    element (Col 6 lines 20-23, client initiated cache requests are handled by the proxy

    servers) and receiving a send acknowledgment command from the application (Col 10

    lines 4-29, ACK are sent from the proxy server), wherein the proxy element is further

    configured to send the acknowledgment of receipt (ACK) to the first external entity (Col

    10 lines 4-7, ACK is sent from the proxy server to the client) subsequent to performance

    of the predefined operation (Col 9 line 52 – Col 10 line 7, TCP ACK is sent after second

    server takes over the TCP connection of the failed first server)

26. Referring to claim 21, Orman teaches the apparatus of claim 18 further including a switch

    (switch 310, figure 3) disposed to failover the first stateful protocol connection from the

    proxy element to the standby proxy (Col 8 lines 63-66, connections between the client

    and the first server is failing over to the second server).

27. Referring to claim 22, Orman teaches the apparatus of claim 21 further including a failure

    detection unit configured to detect failure of the first stateful protocol connection (Col 9

    lines 11-13, failure of first server is detected by the second server) and to command the

switch to initiate said failover (Col 9 lines 52-66), the standby proxy beginning servicing,

the first stateful protocol connection from a last successful point of synchronization

between the proxy element and the standby proxy (Col 10 lines 22-29, Col 3 lines 32-45).

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

29. Claims 3, 4, 6, 7, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Orman, in views of Serex et al., US Patent Number 6,532,079, hereinafter Serex.

30. Referring to claim 3, Orman teaches the method of claim 1 wherein the predefined

operation comprises: sending, from the proxy element (first server), the data to a second

external entity (web server corresponds to " a second external entity") (Col 5 lines 28-31,

Col 6 lines 20-23, Col 1 lines 31-35, proxy server handles user requests and retrieve data

from the web server).

Orman does not explicitly teach, receiving, at the proxy element, a second

acknowledgment that the data has been received at the second external entity.

However, Serex teaches, once the data transfer is completed, the image processor

acknowledges that the transfer was carried out properly, which enables the information

server to delete the copy of the information stored (Col 3 lines 57-60).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate the copy deletion on information server based on transfer acknowledgement of Serex, into Orman because Orman teaches a proxy device that handles user request to retrieve information from a server (Col 5 lines 28-31), and Serex suggests to delete the redundant information upon acknowledgement at proxy device (Col 3 lines 57-60)

A person with ordinary skill in the art would have been motivated to make the modification to Orman because having such acknowledgement would allow proxy device of Orman to be informed whether an information is transfer properly and prevent unaware data loses and saving memory spaces upon deleting redundant information on information server as taught by Serex (Col 3 lines 57-60).

31. Referring to claim 4, Orman as modified teaches the method of claim 3 wherein the sending of the data to the second external entity (Col 5 lines 28-35, client uses proxy server to retrieve data from web server, client request is sent to the web server from the proxy server) is performed in accordance with a second stateful protocol connection (figure 1, connection between the proxy server and the web server, corresponds to "a second stateful protocol connection"), the method further including transferring state information relating to the second stateful protocol connection to the standby proxy (Col 9 lines 52-55, 63-66, shared state information originally owned by the failed first server is transferred to the second server).

32. Referring to claim 6, Orman as modified teaches the method of claim 4 further including failing over the second stateful protocol connection to the standby proxy (Col 8 lines 63-

66, connections between the web server and the first server is failing over to the second

server).

33. Referring to claim 7, Orman teaches the method of claim 1, and Orman does not

explicitly teach transmitting, from the first external entity, the data to the proxy element

and retaining a copy of the data; and deleting the copy of the data upon receipt at the first

external entity of the acknowledgment.

However, Serex teaches once the data transfer is completed, the image processor

acknowledges that the transfer was carried out properly, which enables the information

server to delete the copy of the information stored (Col 3 lines 57-60).

It would have been obvious to a person with ordinary skill in the art at the time

the invention was made to incorporate the copy deletion on a sender device based on

transfer acknowledgement of Serex, into Orman because Orman teaches a proxy device

that handles user request (Col 5 lines 28-31, Col 6 lines 20-22), and Serex suggests to

delete the redundant information upon acknowledgement at proxy device (Col 3 lines 57-

60)

A person with ordinary skill in the art would have been motivated to make the

modification to Orman because having such acknowledgement would allow proxy device

of Orman to be informed whether an information is transfer properly and prevent

unaware data loses and saving memory spaces upon deleting redundant information on

the sender device as taught by Serex (Col 3 lines 57-60).

34. Referring to claim 13, Orman teaches the method of claim 11 wherein the predefined

operation comprises: sending the data to a host entity (web server corresponds to " host

entity") (Col 5 lines 28-31, Col 6 lines 20-23, Col 1 lines 31-35, proxy server handles user requests and retrieve data from the web server).

Orman does not explicitly teach, receiving confirmation that the data has been received at the host entity.

However, Serex teaches once the data transfer is completed, the image processor acknowledges that the transfer was carried out properly, which enables the information server to delete the copy of the information stored (Col 3 lines 57-60).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to incorporate the copy deletion on information server based on transfer acknowledgement of Serex, into Orman because Orman teaches a proxy device that handles user request to retrieve information from a server (Col 5 lines 28-31), and Serex suggests to delete the redundant information upon acknowledgement at proxy device (Col 3 lines 57-60)

A person with ordinary skill in the art would have been motivated to make the modification to Orman because having such acknowledgement would allow proxy device of Orman to be informed whether an information is transfer properly and prevent unaware data loses and saving memory spaces upon deleting redundant information on information server as taught by Serex (Col 3 lines 57-60).

35. Referring to claim 20, Orman teaches the apparatus of claim 18, wherein the second protocol core is configured to support a second stateful protocol connection to a second external entity (web server) over which is transmitted the data (Col 9 lines 8-11, Col 5 lines Col 5 lines 28-35, original TCP connection established between the first server and

the web server corresponds to "a second stateful protocol connection") and wherein the

predefined operation comprises receiving, at the proxy element, a second

acknowledgement that the data has been received at the second external entity.

Orman does not explicitly teach, receiving, at the proxy element, a second

acknowledgment that the data has been received at the second external entity.

However, Serex teaches once the data transfer is completed, the image processor

acknowledges that the transfer was carried out properly, which enables the information

server to delete the copy of the information stored (Col 3 lines 57-60).

It would have been obvious to a person with ordinary skill in the art at the time

the invention was made to incorporate the copy deletion on information server based on

transfer acknowledgement of Serex, into Orman because Orman teaches a proxy device

that handles user request to retrieve information from a server (Col 5 lines 28-31), and

Serex suggests to delete the redundant information upon acknowledgement at proxy

device (Col 3 lines 57-60)

A person with ordinary skill in the art would have been motivated to make the

modification to Orman because having such acknowledgement would allow proxy device

of Orman to be informed whether an information is transfer properly and prevent

unaware data loses and saving memory spaces upon deleting redundant information on

information server as taught by Serex (Col 3 lines 57-60).

Conclusion

36. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and the objection made. Applicant must show how the amendments avoid such references and objections. See 37 CFR 1.111(c).

37. Bae et al., US Patent Number 7,137,040, teaches a monitoring system that provides failover capability so that proxy resource coverage is preserved and maintained in the event of node failure.

38. Yu et al., US Pub. No. 2004/0010583A1, teaches method and apparatus for defining failover events in a network device.

39. Fletchet et al., US Pub. No. 2004/0004948A1, teaches a mobile access point deletes its stored copy of the data transmitted to the client once an acknowledgement message from the client is received.

40. Anderson, US Pub. No. US 2004/0210795A1, teaches deleting redundant data after receiving an acknowledgement.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liang-che Alex Wang whose telephone number is (571)272-3992. The examiner can normally be reached on Monday thru Friday, 8:30 am to 5:00 pm.

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571)272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

43. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Liang-che Alex Wang
February 27, 2007